

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 7,276,589 B2
APPLICATION NO. : 10/724274
DATED : October 2, 2007
INVENTOR(S) : Ramakrishnan et al.

Page 1 of 29

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In the Specification:

Please replace the Sequence Listing beginning at column 35, line 40 with the substitute Sequence Listing submitted.

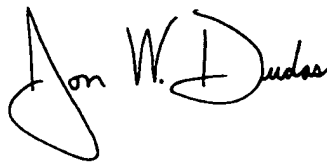
In the Claims:

In Claim 9, column 72, line 49:

Please replace "carder" with --carrier--.

Signed and Sealed this

Twenty-eighth Day of October, 2008

A handwritten signature in black ink, appearing to read "Jon W. Dudas". The signature is stylized with a large, looped initial "J" and a cursive "Dudas".

JON W. DUDAS
Director of the United States Patent and Trademark Office

SEQUENCE LISTING

<110> Protein Design Labs, Inc.
 Ramakrishnan, Vanitha
 Powers, David
 Johnson, Dale E
 Jeffry, Ursula
 Bhaskar, Vinay

<120> Chimeric and Humanized Antibodies to alpha5beta1 Integrin That
 Modulate Angiogenesis

<130> 05882.0178.NPUS01

<140> 10/724,274

<141> 2003-11-26

<150> 60/429,743

<151> 2002-11-26

<150> 60/508,149

<151> 2003-09-30

<160> 47

<170> PatentIn version 3.2

<210> 1

<211> 124

<212> PRT

<213> mus musculus

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Ser Leu Ser Ile Thr Cys Thr Ile Ser Gly Phe Ser Leu Thr Asp Tyr
 20 25 30

Gly Val His Trp Val Arg Gln Pro Pro Gly Lys Gly Leu Glu Trp Leu
 35 40 45

Val Val Ile Trp Ser Asp Gly Ser Ser Thr Tyr Asn Ser Ala Leu Lys
 50 55 60

Ser Arg Met Thr Ile Arg Lys Asp Asn Ser Lys Ser Gln Val Phe Leu
 65 70 75 80

Ile Met Asn Ser Leu Gln Thr Asp Asp Ser Ala Met Tyr Tyr Cys Ala
 85 90 95

Arg His Gly Thr Tyr Tyr Gly Met Thr Thr Thr Gly Asp Ala Leu Asp
 100 105 110

Tyr Trp Gly Gln Gly Thr Ser Val Thr Val Ser Ser
 115 120

<210> 2
 <211> 124
 <212> PRT
 <213> Artificial Sequence Sequence

<220>
 <223> humanized antibody

<400> 2

Gln Val Gln Leu Val Glu Ser Gly Pro Gly Leu Val Gln Pro Gly Gly
 1 5 10 15

Ser Leu Arg Ile Ser Cys Ala Ile Ser Gly Phe Ser Leu Thr Asp Tyr
 20 25 30

Gly Val His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Leu
 35 40 45

Val Val Ile Trp Ser Asp Gly Ser Ser Thr Tyr Asn Ser Ala Leu Lys
 50 55 60

Ser Arg Met Thr Ile Ser Lys Asp Asn Ser Lys Ser Thr Val Tyr Leu
 65 70 75 80

Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Met Tyr Tyr Cys Ala
 85 90 95

Arg His Gly Thr Tyr Tyr Gly Met Thr Thr Thr Gly Asp Ala Leu Asp
 100 105 110

Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
 115 120

<210> 3
 <211> 124
 <212> PRT
 <213> Artificial Sequence Sequence

<220>
 <223> humanized antibody

<400> 3

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15

Ser Leu Arg Ile Ser Cys Ala Ile Ser Gly Phe Ser Leu Thr Asp Tyr
 20 25 30

Gly Val His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Leu
 35 40 45

Val Val Ile Trp Ser Asp Gly Ser Ser Thr Tyr Asn Ser Ala Leu Lys
 50 55 60

Ser Arg Met Thr Ile Ser Lys Asp Asn Ser Lys Asn Thr Val Tyr Leu
 65 70 75 80

Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys Ala
 85 90 95

Arg His Gly Thr Tyr Tyr Gly Met Thr Thr Thr Gly Asp Ala Leu Asp
 100 105 110

Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
 115 120

<210> 4
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 <212> PRT
 <213> Artificial Sequence

<220>
 <223> humanized antibody

<400> 4

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Ser Leu Thr Asp Tyr
 20 25 30

Gly Val His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45

Ser Val Ile Trp Ser Asp Gly Ser Ser Thr Tyr Asn Ser Ala Leu Lys
 50 55 60

Ser Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr Leu
 65 70 75 80

Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys Ala
 85 90 95

Arg His Gly Thr Tyr Tyr Gly Met Thr Thr Thr Gly Asp Ala Leu Asp
 100 105 110

Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
 115 120

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<220>
 <223> humanized antibody

<400> 5

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ile Ser Gly Phe Ser Leu Thr Asp Tyr
 20 25 30

Gly Val His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Leu
 35 40 45

Val Val Ile Trp Ser Asp Gly Ser Ser Thr Tyr Asn Ser Ala Leu Lys
 50 55 60

Ser Arg Met Thr Ile Ser Lys Asp Asn Ser Lys Ser Thr Val Tyr Leu
 65 70 75 80

Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys Ala
 85 90 95

Arg His Gly Thr Tyr Tyr Gly Met Thr Thr Thr Gly Asp Ala Leu Asp
 100 105 110

Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
 115 120

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 <212> PRT
 <213> Artificial Sequence

<220>
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<400> 6

Gln Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15

Ser Leu Arg Ile Ser Cys Ala Ile Ser Gly Phe Ser Leu Thr Asp Tyr
 20 25 30

Gly Val His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Leu
 35 40 45

Val Val Ile Trp Ser Asp Gly Ser Ser Thr Tyr Asn Ser Ala Leu Lys
 50 55 60

Ser Arg Met Thr Ile Ser Lys Asp Asn Ser Lys Ser Thr Val Tyr Leu
 65 70 75 80

Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Met Tyr Tyr Cys Ala
 85 90 95

Arg His Gly Thr Tyr Tyr Gly Met Thr Thr Thr Gly Asp Ala Leu Asp
 100 105 110

Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
 115 120

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 <212> PRT
 <213> mus musculus

<400> 7

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Glu Arg Val Thr Met Thr Cys Thr Ala Ser Ser Ser Val Ser Ser Asn
 20 25 30

Tyr Leu His Trp Tyr Gln Gln Lys Pro Gly Ser Ala Pro Asn Leu Trp
 35 40 45

Ile Tyr Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ala Arg Phe Ser
 50 55 60

Gly Ser Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Ser Ser Met Glu
 65 70 75 80

Ala Glu Asp Ala Ala Thr Tyr Tyr Cys His Gln Tyr Leu Arg Ser Pro
 85 90 95

Pro Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg
 100 105

<210> 8
 <211> 109
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> humanized antibody

<400> 8

Asp Ile Gln Leu Thr Gln Ser Pro Ser Ser Met Ser Ala Ser Leu Gly
1 5 10 15

Asp Arg Val Thr Met Thr Cys Thr Ala Ser Ser Ser Val Ser Ser Asn
20 25 30

Tyr Leu His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Asn Leu Trp
35 40 45

Ile Tyr Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ser Arg Phe Ser
50 55 60

Gly Ser Gly Ser Gly Thr Asp Tyr Thr Leu Thr Ile Ser Ser Met Gln
65 70 75 80

Pro Glu Asp Phe Ala Thr Tyr Tyr Cys His Gln Tyr Leu Arg Ser Pro
85 90 95

Pro Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys Arg
100 105

<210> 9

<211> 109

<212> PRT

<213> Artificial sequence

<220>

<223> humanized antibody

<400> 9

Asp Ile Gln Leu Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
1 5 10 15

Asp Arg Val Thr Met Thr Cys Thr Ala Ser Ser Ser Val Ser Ser Asn
20 25 30

Tyr Leu His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Trp
35 40 45

Ile Tyr Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ser Arg Phe Ser
50 55 60

Gly Ser Gly Ser Gly Thr Asp Tyr Thr Leu Thr Ile Ser Ser Met Gln
65 70 75 80

Pro Glu Asp Phe Ala Thr Tyr Tyr Cys His Gln Tyr Leu Arg Ser Pro
85 90 95

Pro Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys Arg

100

105

<210> 10
 <211> 109
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> humanized antibody

<400> 10

Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
 1 5 10 15

Asp Arg Val Thr Ile Thr Cys Thr Ala Ser Ser Ser Val Ser Ser Asn
 20 25 30

Tyr Leu His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu
 35 40 45

Ile Tyr Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ser Arg Phe Ser
 50 55 60

Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln
 65 70 75 80

Pro Glu Asp Phe Ala Thr Tyr Tyr Cys His Gln Tyr Leu Arg Ser Pro
 85 90 95

Pro Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg
 100 105

<210> 11
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 <212> PRT
 <213> Artificial Sequence

<220>
 <223> humanized antibody

<400> 11

Asp Ile Gln Leu Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
 1 5 10 15

Asp Arg Val Thr Ile Thr Cys Thr Ala Ser Ser Ser Val Ser Ser Asn
 20 25 30

Tyr Leu His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Trp
 35 40 45

Ile Tyr Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ser Arg Phe Ser

50

55

60

Gly Ser Gly Ser Gly Thr Asp Tyr Thr Leu Thr Ile Ser Ser Leu Gln
 65 70 75 80

Pro Glu Asp Phe Ala Thr Tyr Tyr Cys His Gln Tyr Leu Arg Ser Pro
 85 90 95

Pro Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg
 100 105

<210> 12
 <211> 109
 <212> PRT
 <213> Artificial sequence

<220>
 <223> humanized antibody

<400> 12

Asp Ile Gln Leu Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
 1 5 10 15

Asp Arg Val Thr Met Thr Cys Thr Ala Ser Ser Ser Val Ser Ser Asn
 20 25 30

Tyr Leu His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Trp
 35 40 45

Ile Tyr Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ser Arg Phe Ser
 50 55 60

Gly Ser Gly Ser Gly Thr Asp Tyr Thr Leu Thr Ile Ser Ser Leu Gln
 65 70 75 80

Pro Glu Asp Phe Ala Thr Tyr Tyr Cys His Gln Tyr Leu Arg Ser Pro
 85 90 95

Pro Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg
 100 105

<210> 13
 <211> 429
 <212> DNA
 <213> mus musculus

<400> 13

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gtgcagctga aggagtcagg acctggcctg gtggcgccct cacagagcct gtccatcaca 120

tgcaccatct cagggttctc attaacccgac tatggtgttc actgggttcg ccagcctcca 180

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ggaaagggc tggagtggc ggtagtgatt tggagtgatg gaagctcaac ctataattca    240
gctctcaaat ccagaatgac catcaggaag gacaactcca agagccaagt tttcttaata    300
atgaacagtc tccaaactga tgactcagcc atgtactact gtgccagaca tggaacttac    360
tacggtatga ctacgacggg ggatgctttg gactactggg gtcaaggaac ctcagtcacc    420
gtctcctca                                     429

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<210> 14
<211> 390
<212> DNA
<213> mus musculus

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<400> 14
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agaggacaaa ttgttctcac ccagtctcca gcaatcatgt ctgcatctct aggggaacgg    120
gtcaccatga cctgcactgc cagttcaagt gtaagttcca attacttgca ctggtaccag    180
cagaagccag gatccgcccc caatctctgg atttatagca catccaacct ggcttctgga    240
gtcccagctc gtttcagtgg cagtgggtct gggacctctt actctctcac aatcagcagc    300
atggaggctg aagatgctgc cacttattac tgccaccagt atcttcgttc cccaccgacg    360
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<210> 15
<211> 429
<212> DNA
<213> Artificial sequence

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<220>
<223> chimeric antibody

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<400> 15
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tgcaccatct cagggttctc attaaccgac tatggtgttc actgggttcg ccagcctcca    180
ggaaagggc tggagtggc ggtagtgatt tggagtgatg gaagctcaac ctataattca    240
gctctcaaat ccagaatgac catcaggaag gacaactcca agagccaagt tttcttaata    300
atgaacagtc tccaaactga tgactcagcc atgtactact gtgccagaca tggaacttac    360
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gtctcgagc                                     429

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<210> 16
<211> 143
<212> PRT
<213> Artificial sequence

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<220>

<223> chimeric antibody

<400> 16

Met Ala Val Leu Gly Leu Leu Leu Cys Leu Val Thr Phe Pro Ser Cys
 1 5 10 15

Val Leu Ser Gln Val Gln Leu Lys Glu Ser Gly Pro Gly Leu Val Ala
 20 25 30

Pro Ser Gln Ser Leu Ser Ile Thr Cys Thr Ile Ser Gly Phe Ser Leu
 35 40 45

Thr Asp Tyr Gly Val His Trp Val Arg Gln Pro Pro Gly Lys Gly Leu
 50 55 60

Glu Trp Leu Val Val Ile Trp Ser Asp Gly Ser Ser Thr Tyr Asn Ser
 65 70 75 80

Ala Leu Lys Ser Arg Met Thr Ile Arg Lys Asp Asn Ser Lys Ser Gln
 85 90 95

Val Phe Leu Ile Met Asn Ser Leu Gln Thr Asp Asp Ser Ala Met Tyr
 100 105 110

Tyr Cys Ala Arg His Gly Thr Tyr Tyr Gly Met Thr Thr Thr Gly Asp
 115 120 125

Ala Leu Asp Tyr Trp Gly Gln Gly Thr Ser Val Thr Val Ser Ser
 130 135 140

<210> 17

<211> 390

<212> DNA

<213> Artificial Sequence

<220>

<223> chimeric antibody

<400> 17

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gtcaccatga cctgcactgc cagttcaagt gtaagttcca attacttgca ctggtaccag	180
cagaagccag gatccgcccc caatctctgg atttatagca catccaacct ggcttctgga	240
gtcccagctc gtttcagtgg cagtgggtct gggacctctt actctctcac aatcagcagc	300
atggaggctg aagatgctgc cacttattac tgccaccagt atcttcgttc cccaccgacg	360
ttcgggtggag gcaccaagct cgagatcaaa	390

<210> 18
 <211> 130
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> chimeric antibody

<400> 18

Met Asp Phe Gln Val Gln Ile Phe Ser Phe Leu Leu Ile Ser Ala Ser
 1 5 10 15

Val Ile Met Ser Arg Gly Gln Ile Val Leu Thr Gln Ser Pro Ala Ile
 20 25 30

Met Ser Ala Ser Leu Gly Glu Arg Val Thr Met Thr Cys Thr Ala Ser
 35 40 45

Ser Ser Val Ser Ser Asn Tyr Leu His Trp Tyr Gln Gln Lys Pro Gly
 50 55 60

Ser Ala Pro Asn Leu Trp Ile Tyr Ser Thr Ser Asn Leu Ala Ser Gly
 65 70 75 80

Val Pro Ala Arg Phe Ser Gly Ser Gly Ser Gly Thr Ser Tyr Ser Leu
 85 90 95

Thr Ile Ser Ser Met Glu Ala Glu Asp Ala Ala Thr Tyr Tyr Cys His
 100 105 110

Gln Tyr Leu Arg Ser Pro Pro Thr Phe Gly Gly Gly Thr Lys Leu Glu
 115 120 125

Ile Lys
 130

<210> 19
 <211> 459
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> chimeric antibody

<400> 19

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tcctgtccca ggtgcagctg aaggagtcag gacctggcct ggtggcgccc tcacagagcc	120
tgtccatcac atgcaccatc tcagggttct cattaaccga ctatggtggt cactgggttc	180
gccagcctcc aggaaagggc ctggagtggc tggtagtgat ttggagtgat ggaagctcaa	240

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cctataattc agctctcaaa tccagaatga ccatacaggaa ggacaactcc aagagccaag    300
ttttcttaat aatgaacagt ctccaaactg atgactcagc catgtactac tgtgccagac    360
atggaactta ctacggaatg actacgacgg gggatgcttt ggactactgg ggtcaaggaa    420
cctcagtcac cgtctcctca ggtaagaatg gcctctaga                               459

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<210> 20
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<212> PRT
<213> Artificial Sequence

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<220>
<223> chimeric antibody
<400> 20

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Met Ala Val Leu Gly Leu Leu Leu Cys Leu Val Thr Phe Pro Ser Cys
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Val Leu Ser Gln Val Gln Leu Lys Glu Ser Gly Pro Gly Leu Val Ala
      20      25      30
Pro Ser Gln Ser Leu Ser Ile Thr Cys Thr Ile Ser Gly Phe Ser Leu
      35      40      45
Thr Asp Tyr Gly Val His Trp Val Arg Gln Pro Pro Gly Lys Gly Leu
      50      55      60
Glu Trp Leu Val Val Ile Trp Ser Asp Gly Ser Ser Thr Tyr Asn Ser
65      70      75      80
Ala Leu Lys Ser Arg Met Thr Ile Arg Lys Asp Asn Ser Lys Ser Gln
      85      90      95
Val Phe Leu Ile Met Asn Ser Leu Gln Thr Asp Asp Ser Ala Met Tyr
      100     105     110
Tyr Cys Ala Arg His Gly Thr Tyr Tyr Gly Met Thr Thr Thr Gly Asp
      115     120     125
Ala Leu Asp Tyr Trp Gly Gln Gly Thr Ser Val Thr Val Ser Ser
      130     135     140

```

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<210> 21
<211> 425
<212> DNA
<213> Artificial Sequence

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<220>
<223> chimeric antibody
<400> 21

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taggggaacg ggtcaccatg acctgcactg ccagttcaag tgtcagttcc aattacttgc      180
actggtacca gcagaagcca ggatccgccc ccaatctctg gatttatagc acatccaacc      240
tggcttctgg agtcccagct cgtttcagtg gcagtgggtc tgggacctct tactctctca      300
caatcagcag catggaggct gaagatgctg ccacttatta ctgccaccag tatcttcggt      360
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ctaga                                                                    425

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<210> 22
<211> 130
<212> PRT
<213> Artificial Sequence

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<220>
<223> chimeric antibody

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<400> 22

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Met Asp Phe Gln Val Gln Ile Phe Ser Phe Leu Leu Ile Ser Ala Ser
1           5           10           15

```

```

Val Ile Met Ser Arg Gly Gln Ile Val Leu Thr Gln Ser Pro Ala Ile
          20           25           30

```

```

Met Ser Ala Ser Leu Gly Glu Arg Val Thr Met Thr Cys Thr Ala Ser
          35           40           45

```

```

Ser Ser Val Ser Ser Asn Tyr Leu His Trp Tyr Gln Gln Lys Pro Gly
          50           55           60

```

```

Ser Ala Pro Asn Leu Trp Ile Tyr Ser Thr Ser Asn Leu Ala Ser Gly
          65           70           75           80

```

```

Val Pro Ala Arg Phe Ser Gly Ser Gly Ser Gly Thr Ser Tyr Ser Leu
          85           90           95

```

```

Thr Ile Ser Ser Met Glu Ala Glu Asp Ala Ala Thr Tyr Tyr Cys His
          100          105          110

```

```

Gln Tyr Leu Arg Ser Pro Pro Thr Phe Gly Gly Gly Thr Lys Leu Glu
          115          120          125

```

```

Ile Lys
          130

```

```

<210> 23

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<211> 1353
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> chimeric antibody

<400> 23
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 ccaggaaagg gtctggagtg gctggtagtg atttgagtg atggaagctc aacctataat 180
 tcagctctca aatccagaat gaccatcagg aaggacaact ccaagagcca agttttctta 240
 ataatgaaca gtctccaaac tgatgactca gccatgtact actgtgccag acatggaact 300
 tactacgga tgactacgac gggggatgct ttggactact ggggtcaagg aacctcagtc 360
 accgtctcct cagcttcac caagggccca tccgtcttcc ccctggcgcc ctgctccagg 420
 agcacctccg agagcacagc cgccctgggc tgcctggta aggactactt ccccgaaccg 480
 gtgacggtgt cgtggaactc aggcgcctg accagcggcg tgcacacctt cccggctgtc 540
 ctacagtctt caggactcta ctccctcagc agcgtggtga ccgtgccctc cagcagcttg 600
 ggcacgaaga cctacacctg caacgtagat cacaagccca gcaacaccaa ggtggacaag 660
 agagttgagt ccaaatatgg tccccatgc ccatcatgcc cagcacctga gttcctgggg 720
 ggaccatcag tcttcctgtt cccccaaaa cccaaggaca ctctcatgat ctcccggacc 780
 cctgaggtca cgtgcgtggt ggtggacgtg agccaggaag accccgaggt ccagttcaac 840
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 aacagcacgt accgtgtggt cagcgtcctc accgtcctgc accaggactg gctgaacggc 960
 aaggagtaca agtgcaaggt ctccaacaaa ggcctcccgt cctccatcga gaaaaccatc 1020
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 gagatgacca agaaccaggt cagcctgacc tgcctggta aaggcttcta ccccagcgac 1140
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 gtgctggact ccgacggctc cttcttctc tacagcaggc taaccgtgga caagagcagg 1260
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 acacagaaga gcctctcct gtctctgggt aaa 1353

<210> 24
 <211> 645
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> chimeric antibody

<400> 24

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ccaggatccg cccccaatct ctggatttat agcacatcca acctggcttc tggagtccca    180
gctcgtttca gtggcagtgg gtctgggacc tcttactctc tcacaatcag cagcatggag    240
gctgaagatg ctgccactta ttactgccac cagtatcttc gttccccacc gacgttcggt    300
ggaggcacca agctggaaat caaacgaact gtggctgcac catctgtctt catcttcccg    360
ccatctgatg agcagttgaa atctggaact gcctctgttg tgtgcttctt gaataacttc    420
tatcccagag aggccaaagt acagtggaag gtggataacg cctccaatc gggttaactcc    480
caggagagtg tcacagagca ggacagcaag gacagcacct acagcctcag cagcacctg    540
acgctgagca aagcagacta cgagaaacac aaagtctacg cctgcgaagt caccatcag    600
ggcctgagct cgcccgctac aaagagcttc aacaggggag agtgt                      645

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<210> 25
<211> 451
<212> PRT
<213> Artificial Sequence

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<220>
<223> chimeric antibody

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<400> 25

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Gln Val Gln Leu Lys Glu Ser Gly Pro Gly Leu Val Ala Pro Ser Gln
1           5           10           15

```

```

Ser Leu Ser Ile Thr Cys Thr Ile Ser Gly Phe Ser Leu Thr Asp Tyr
          20           25           30

```

```

Gly Val His Trp Val Arg Gln Pro Pro Gly Lys Gly Leu Glu Trp Leu
          35           40           45

```

```

Val Val Ile Trp Ser Asp Gly Ser Ser Thr Tyr Asn Ser Ala Leu Lys
          50           55           60

```

```

Ser Arg Met Thr Ile Arg Lys Asp Asn Ser Lys Ser Gln Val Phe Leu
65           70           75           80

```

```

Ile Met Asn Ser Leu Gln Thr Asp Asp Ser Ala Met Tyr Tyr Cys Ala
          85           90           95

```

```

Arg His Gly Thr Tyr Tyr Gly Met Thr Thr Thr Gly Asp Ala Leu Asp
          100          105          110

```

```

Tyr Trp Gly Gln Gly Thr Ser Val Thr Val Ser Ser Ala Ser Thr Lys
          115          120          125

```

Gly Pro Ser Val Phe Pro Leu Ala Pro Cys Ser Arg Ser Thr Ser Glu
 130 135 140

Ser Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro
 145 150 155 160

Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr
 165 170 175

Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val
 180 185 190

Val Thr Val Pro Ser Ser Ser Leu Gly Thr Lys Thr Tyr Thr Cys Asn
 195 200 205

Val Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Ser
 210 215 220

Lys Tyr Gly Pro Pro Cys Pro Ser Cys Pro Ala Pro Glu Phe Leu Gly
 225 230 235 240

Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met
 245 250 255

Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser Gln
 260 265 270

Glu Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp Gly Val Glu Val
 275 280 285

His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr
 290 295 300

Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly
 305 310 315 320

Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile
 325 330 335

Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val
 340 345 350

Tyr Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys Asn Gln Val Ser
 355 360 365

Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu
 370 375 380

Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro
 385 390 395 400

Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Arg Leu Thr Val
 405 410 415

Asp Lys Ser Arg Trp Gln Glu Gly Asn Val Phe Ser Cys Ser Val Met
 420 425 430

His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser
 435 440 445

Leu Gly Lys
 450

<210> 26
 <211> 215
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> chimeric antibody

<400> 26

Gln Ile Val Leu Thr Gln Ser Pro Ala Ile Met Ser Ala Ser Leu Gly
 1 5 10 15

Glu Arg Val Thr Met Thr Cys Thr Ala Ser Ser Ser Val Ser Ser Asn
 20 25 30

Tyr Leu His Trp Tyr Gln Gln Lys Pro Gly Ser Ala Pro Asn Leu Trp
 35 40 45

Ile Tyr Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ala Arg Phe Ser
 50 55 60

Gly Ser Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Ser Ser Met Glu
 65 70 75 80

Ala Glu Asp Ala Ala Thr Tyr Tyr Cys His Gln Tyr Leu Arg Ser Pro
 85 90 95

Pro Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg Thr Val Ala
 100 105 110

Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser
 115 120 125

Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu

130

135

140

Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser
 145 150 155 160

Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu
 165 170 175

Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val
 180 185 190

Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys
 195 200 205

Ser Phe Asn Arg Gly Glu Cys
 210 215

<210> 27
 <211> 696
 <212> DNA
 <213> Artificial sequence

<220>
 <223> chimeric antibody

<400> 27
 cagggtgcagc tgaaggagtc aggacctggc ctggtggcgc cctcacagag cctgtccatc 60
 acatgcacca tctcagggtt ctcattaacc gactatggtg ttcactgggt tcgccagcct 120
 ccaggaaagg gtctggagtg gctggtagtg atttgagtg atggaagctc aacctataat 180
 tcagctctca aatccagaat gaccatcagg aaggacaact ccaagagcca agttttctta 240
 ataatgaaca gtctccaaac tgatgactca gccatgtact actgtgccag acatggaact 300
 tactacggaa tgactacgac gggggatgct ttgactact ggggtcaagg aacctcagtc 360
 accgtctcct cagcttcac caagggccca tccgtcttc ccctggcgcc ctgctccagg 420
 agcacctccg agagcacagc cgccctgggc tgcctggtca aggactactt ccccgaaaccg 480
 gtgacggtgt cgtggaactc aggcgccttg accagcggcg tgcacacctt cccggctgtc 540
 ctacagtcct caggactcta ctccctcagc agcgtggtga ccgtgccctc cagcagcttg 600
 ggcacgaaga cctacacctg caacgtagat cacaagccca gcaacaccaa ggtggacaag 660
 agagttgagt ccaaatatgg tccccatgc ccatca 696

<210> 28
 <211> 232
 <212> PRT
 <213> Artificial sequence

<220>
 <223> chimeric antibody

<400> 28

Gln Val Gln Leu Lys Glu Ser Gly Pro Gly Leu Val Ala Pro Ser Gln
 1 5 10 15

Ser Leu Ser Ile Thr Cys Thr Ile Ser Gly Phe Ser Leu Thr Asp Tyr
 20 25 30

Gly Val His Trp Val Arg Gln Pro Pro Gly Lys Gly Leu Glu Trp Leu
 35 40 45

Val Val Ile Trp Ser Asp Gly Ser Ser Thr Tyr Asn Ser Ala Leu Lys
 50 55 60

Ser Arg Met Thr Ile Arg Lys Asp Asn Ser Lys Ser Gln Val Phe Leu
 65 70 75 80

Ile Met Asn Ser Leu Gln Thr Asp Asp Ser Ala Met Tyr Tyr Cys Ala
 85 90 95

Arg His Gly Thr Tyr Tyr Gly Met Thr Thr Thr Gly Asp Ala Leu Asp
 100 105 110

Tyr Trp Gly Gln Gly Thr Ser Val Thr Val Ser Ser Ala Ser Thr Lys
 115 120 125

Gly Pro Ser Val Phe Pro Leu Ala Pro Cys Ser Arg Ser Thr Ser Glu
 130 135 140

Ser Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro
 145 150 155 160

Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr
 165 170 175

Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val
 180 185 190

Val Thr Val Pro Ser Ser Ser Leu Gly Thr Lys Thr Tyr Thr Cys Asn
 195 200 205

Val Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Ser
 210 215 220

Lys Tyr Gly Pro Pro Cys Pro Ser
 225 230

<210> 29

<211> 1353
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> chimeric antibody

<400> 29
 gaggtgcagc tgggtggagtc aggaggaggc ctggtgcagc ccggaggaag cctgagactg 60
 tcatgcgccg cctcagggtt ctcatataacc gactatgggtg ttacttgggt tgcaggcc 120
 ccaggaaagg gtctggagtg gctgggtggtg atttggagtg atggaagctc aacctataat 180
 tcagctctca aatccagaat gaccatctca aaggacaacg ccaagaacac cgtgtactta 240
 cagatgaaca gtctcagagc tgaggacacc gccgtgtact actgtgccag acatggaact 300
 tactacggaa tgactacgac gggggatgct ttggactact ggggtcaagg aaccctggtc 360
 accgtctcct cagcttccac caagggccca tccgtcttcc ccctggcgcc ctgctccagg 420
 agcacctccg agagcacagc cgccctgggc tgcctgggtca aggactactt ccccgaaaccg 480
 gtgacgggtgt cgtggaactc aggcgccttg accagcggcg tgcacacctt cccggctgtc 540
 ctacagtcct caggactcta ctccctcagc agcgtgggtga ccgtgccctc cagcagcttg 600
 ggcacgaaga cctacacctg caacgtagat cacaagccca gcaacaccaa ggtggacaag 660
 agagttgagt ccaaatatgg tccccatgc ccatcatgcc cagcacctga gttcctgggg 720
 ggaccatcag tcttcctggt cccccaaaa cccaaggaca ctctcatgat ctcccggacc 780
 cctgagggtca cgtgcgtggt ggtggacgtg agccaggaag accccgaggt ccagttcaac 840
 tgggtacgtgg atggcgtgga ggtgcataat gccaaagaca agccgcggga ggagcagttc 900
 aacagcacgt accgtgtggt cagcgtcctc accgtcctgc accaggactg gctgaacggc 960
 aaggagtaca agtgcaaggt ctccaacaaa ggctccccgt cctccatcga gaaaaccatc 1020
 tccaaagcca aagggcagcc ccgagagcca cagggtgtaca ccctgcccc atcccaggag 1080
 gagatgacca agaaccaggt cagcctgacc tgcctgggtca aaggcttcta cccagcgac 1140
 atcgccgtgg agtgggagag caatgggcag ccggagaaca actacaagac cagcctccc 1200
 gtgctggact ccgacggctc cttcttctc tacagcaggc taaccgtgga caagagcagg 1260
 tggcaggagg ggaatgtctt ctcatgtctc gtgatgcatg aggtcttgca caaccactac 1320
 acacagaaga gcctctccct gtctctgggt aaa 1353

<210> 30
 <211> 645
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> chimeric antibody

<400> 30

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gaaattgttc tcaccagtc tccagcaacc ctctctctct ctccggggga acgggctacc      60
ctctcctgca ctgccagttc aagtgtcagt tccaattact tgcactggta ccagcagaag    120
ccaggacagg cccccgtct cctcatttat agcacatcca acctggcttc tggagtccca    180
gtctgtttca gtggcagtgg gtctgggacc tcttacaccc tcacaatcag cagcctcgag    240
ccagaagatt tcgccgtcta ttactgccac cagtatcttc gttccccacc gacgttcggt    300
ggaggcacca aggtcgaaat caaacgaact gtggctgcac catctgtctt catcttcccg    360
ccatctgatg agcagttgaa atctggaact gcctctgttg tgtgctgct gaataacttc    420
tatcccagag aggccaaagt acagtggaag gtggataacg ccctccaatc gggtaactcc    480
caggagagtg tcacagagca ggacagcaag gacagcacct acagcctcag cagcaccctg    540
acgctgagca aagcagacta cgagaaacac aaagtctacg cctgcgaagt caccatcag    600
ggcctgagct cgcccgtcac aaagagcttc aacaggggag agtgt                      645

```

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<210> 31
<211> 451
<212> PRT
<213> Artificial Sequence

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```

<220>
<223> chimeric antibody

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<400> 31

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```

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1           5           10           15

```

```

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Ser Leu Thr Asp Tyr
          20           25           30

```

```

Gly Val His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Leu
          35           40           45

```

```

Val Val Ile Trp Ser Asp Gly Ser Ser Thr Tyr Asn Ser Ala Leu Lys
          50           55           60

```

```

Ser Arg Met Thr Ile Ser Lys Asp Asn Ala Lys Asn Thr Val Tyr Leu
65           70           75           80

```

```

Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys Ala
          85           90           95

```

```

Arg His Gly Thr Tyr Tyr Gly Met Thr Thr Thr Gly Asp Ala Leu Asp
          100          105          110

```

```

Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys
          115          120          125

```

Gly Pro Ser Val Phe Pro Leu Ala Pro Cys Ser Arg Ser Thr Ser Glu
 130 135 140

Ser Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro
 145 150 155 160

Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr
 165 170 175

Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val
 180 185 190

Val Thr Val Pro Ser Ser Ser Leu Gly Thr Lys Thr Tyr Thr Cys Asn
 195 200 205

Val Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Ser
 210 215 220

Lys Tyr Gly Pro Pro Cys Pro Ser Cys Pro Ala Pro Glu Phe Leu Gly
 225 230 235 240

Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met
 245 250 255

Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser Gln
 260 265 270

Glu Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp Gly Val Glu Val
 275 280 285

His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr
 290 295 300

Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly
 305 310 315 320

Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile
 325 330 335

Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val
 340 345 350

Tyr Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys Asn Gln Val Ser
 355 360 365

Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu
 370 375 380

Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro
385 390 395 400

Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Arg Leu Thr Val
405 410 415

Asp Lys Ser Arg Trp Gln Glu Gly Asn Val Phe Ser Cys Ser Val Met
420 425 430

His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser
435 440 445

Leu Gly Lys
450

<210> 32
<211> 215
<212> PRT
<213> Artificial sequence

<220>
<223> chimeric antibody

<400> 32

Glu Ile Val Leu Thr Gln Ser Pro Ala Thr Leu Ser Leu Ser Pro Gly
1 5 10 15

Glu Arg Ala Thr Leu Ser Cys Thr Ala Ser Ser Ser Val Ser Ser Asn
20 25 30

Tyr Leu His Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Arg Leu Leu
35 40 45

Ile Tyr Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ala Arg Phe Ser
50 55 60

Gly Ser Gly Ser Gly Thr Ser Tyr Thr Leu Thr Ile Ser Ser Leu Glu
65 70 75 80

Pro Glu Asp Phe Ala Val Tyr Tyr Cys His Gln Tyr Leu Arg Ser Pro
85 90 95

Pro Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Lys Arg Thr Val Ala
100 105 110

Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser
115 120 125

Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu

130

135

140

Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser
 145 150 155 160

Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu
 165 170 175

Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val
 180 185 190

Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys
 195 200 205

Ser Phe Asn Arg Gly Glu Cys
 210 215

<210> 33
 <211> 6
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> oligonucleotide

<400> 33
 ctcgag

6

<210> 34
 <211> 6
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> oligonucleotide

<400> 34
 tctaga

6

<210> 35
 <211> 6
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> oligonucleotide

<400> 35
 acgcgt

6

<210> 36
 <211> 35
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> oligonucleotide
 <400> 36
 ttttctagac caccatggct gtcctggggc tgctt 35

<210> 37
 <211> 47
 <212> DNA
 <213> Artificial sequence

<220>
 <223> oligonucleotide
 <400> 37
 ttttctagag gttgtgagga ctcacctgag gagacgggtga ctgaggt 47

<210> 38
 <211> 31
 <212> DNA
 <213> Artificial sequence

<220>
 <223> oligonucleotide
 <400> 38
 tggaacttac tacggaatga ctacgacggg g 31

<210> 39
 <211> 31
 <212> DNA
 <213> Artificial sequence

<220>
 <223> oligonucleotide
 <400> 39
 ccccgctcgta gtcattccgt agtaagttcc a 31

<210> 40
 <211> 43
 <212> DNA
 <213> Artificial sequence

<220>
 <223> oligonucleotide
 <400> 40
 ttttctagag gccattctta cctgaggaga cggtgactga ggt 43

<210> 41
 <211> 35
 <212> DNA
 <213> Artificial sequence

<220>
 <223> oligonucleotide
 <400> 41

tttacgcgtc caccatggat tttcaggtgc agatt

35

<210> 42
 <211> 49
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> oligonucleotide

<400> 42
 ttttctagat taggaaagtg cacttacgtt tgatttccag ctggtgcc

49

<210> 43
 <211> 31
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> oligonucleotide

<400> 43
 tgccagttca agtgtcagtt ccaattactt g

31

<210> 44
 <211> 31
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> oligonucleotide

<400> 44
 caagtaattg gaactgacac ttgaactggc a

31

<210> 45
 <211> 48
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> oligonucleotide

<400> 45
 ttttctagac ttggtattct acttacgttt gatttccagc ttggtgcc

48

<210> 46
 <211> 143
 <212> PRT
 <213> mus musculus

<400> 46

Met Ala Val Leu Gly Leu Leu Leu Cys Leu Val Thr Phe Pro Ser Cys
 1 5 10 15

Val Leu Ser Gln Val Gln Leu Lys Glu Ser Gly Pro Gly Leu Val Ala
 20 25 30

Pro Ser Gln Ser Leu Ser Ile Thr Cys Thr Ile Ser Gly Phe Ser Leu
 35 40 45

Thr Asp Tyr Gly Val His Trp Val Arg Gln Pro Pro Gly Lys Gly Leu
 50 55 60

Glu Trp Leu Val Val Ile Trp Ser Asp Gly Ser Ser Thr Tyr Asn Ser
 65 70 75 80

Ala Leu Lys Ser Arg Met Thr Ile Arg Lys Asp Asn Ser Lys Ser Gln
 85 90 95

Val Phe Leu Ile Met Asn Ser Leu Gln Thr Asp Asp Ser Ala Met Tyr
 100 105 110

Tyr Cys Ala Arg His Gly Thr Tyr Tyr Gly Met Thr Thr Thr Gly Asp
 115 120 125

Ala Leu Asp Tyr Trp Gly Gln Gly Thr Ser Val Thr Val Ser Ser
 130 135 140

<210> 47
 <211> 130
 <212> PRT
 <213> mus musculus

<400> 47

Met Asp Phe Gln Val Gln Ile Phe Ser Phe Leu Leu Ile Ser Ala Ser
 1 5 10 15

Val Ile Met Ser Arg Gly Gln Ile Val Leu Thr Gln Ser Pro Ala Ile
 20 25 30

Met Ser Ala Ser Leu Gly Glu Arg Val Thr Met Thr Cys Thr Ala Ser
 35 40 45

Ser Ser Val Ser Ser Asn Tyr Leu His Trp Tyr Gln Gln Lys Pro Gly
 50 55 60

Ser Ala Pro Asn Leu Trp Ile Tyr Ser Thr Ser Asn Leu Ala Ser Gly
 65 70 75 80

Val Pro Ala Arg Phe Ser Gly Ser Gly Ser Gly Thr Ser Tyr Ser Leu
 85 90 95

Thr Ile Ser Ser Met Glu Ala Glu Asp Ala Ala Thr Tyr Tyr Cys His
 100 105 110

Gln Tyr Leu Arg Ser Pro Pro Thr Phe Gly Gly Gly Thr Lys Leu Glu
115 120 125

Ile Lys
130